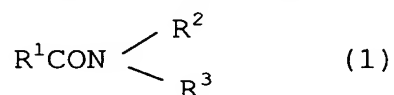


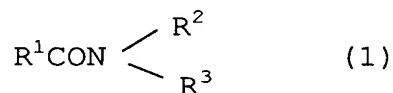
## CLAIMS

1. A lubricant for powder metallurgy comprising a polyhydroxycarboxylic acid amide of the following formula (1):



(wherein  $\text{R}^1$  represents an alkyl group having from 2 to 10 carbon atoms and substituted with plural hydroxyl groups;  $\text{R}^2$  represents a hydrocarbon group having from 8 to 30 carbon atoms; and  $\text{R}^3$  represents a hydrogen atom, or a hydrocarbon group having from 1 to 30 carbon atoms).

2. A lubricant for powder metallurgy comprising a polyhydroxycarboxylic acid amide of the following formula (1):



(wherein  $\text{R}^1$  represents an alkyl group substituted with plural hydroxyl groups, provided that the number of the carbon atoms constituting the alkyl group is an integer selected from a range of from  $n$  to  $5 \times n$ , in which  $n$  indicates the number of the substituted hydroxyl groups;  $\text{R}^2$  represents a hydrocarbon group having from 8 to 30 carbon atoms; and  $\text{R}^3$  represents a hydrogen atom, or a hydrocarbon group having from 1 to 30 carbon atoms).

3. The lubricant for powder metallurgy as claimed in claim 1 or 2, wherein the polyhydroxycarboxylic acid amide (1) is an aldonic acid amide.

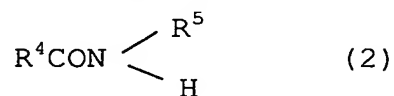
4. The lubricant for powder metallurgy as claimed in

claim 1 or 2, wherein R<sup>1</sup> has 5 carbons atoms.

5. The lubricant for powder metallurgy as claimed in claim 1 or 2, wherein R<sup>3</sup> is a hydrogen atom.

6. The lubricant for powder metallurgy as claimed in claim 1 or 2, which has a mean particle size of from 1 to 300 μm.

7. The lubricant for powder metallurgy as claimed in claim 1 or 2, which further contains an auxiliary lubricant and in which the auxiliary lubricant is at least one selected from a metal soap, an alkylenebis-fatty acid amide and a fatty acid amide of the following formula (2):



(wherein R<sup>4</sup> represents a hydrocarbon group having from 7 to 29 carbon atoms; R<sup>5</sup> represents a hydrogen atom, or a hydrocarbon group having from 1 to 30 carbon atoms).

8. The lubricant for powder metallurgy as claimed in claim 7, wherein the fatty acid amide (2) is (N-octadecenyl)hexadecanoic acid amide or (N-octadecyl)docosenoic acid amide.

9. The lubricant for powder metallurgy as claimed in claim 7, wherein the ratio by mass of the polyhydroxycarboxylic acid amide (1) to the auxiliary lubricant (former/latter) is from 30/70 to less than 100/0.

10. The lubricant for powder metallurgy as claimed in claim 7, which further contains a fatty acid.

11. The lubricant for powder metallurgy as claimed in claim 10, wherein the fatty acid is a saturated aliphatic monocarboxylic acid having from 16 to 22 carbon atoms.

12. The lubricant for powder metallurgy as claimed in claim 7, wherein the ratio by mass of the total of the polyhydroxycarboxylic acid amide (1) and the fatty acid to the auxiliary lubricant (former/latter) is from 30/70 to less than 100/0; and

the ratio by mass of the polyhydroxycarboxylic acid amide (1) to the fatty acid (former/latter) is from 20/80 to less than 100/0.

13. A mixed powder for powder metallurgy, prepared by mixing a lubricant for powder metallurgy of claim 1, 2, 7 or 10, and a metal powder.

14. A method for producing a sintered body, comprising shaping a mixed powder for powder metallurgy of claim 13 through compression followed by sintering it.